Claims: What is claimed is:

1. An apparatus for thawing frozen biological fluids utilizing heating plates and oscillatory motion to enhance heat transfer by mixing comprising:

A.) a first heating plate contacting one generally flat surface of one or more plastic bags containing frozen liquid to be thawed;

B.) a second heating plate approximately parallel to said first heating plate and contacting the flat surface of said bag(s) opposite said surface contacted by said first heating plate, said heating plates being made of highly heat conductive material, such as aluminum sheet;

C.) means to hold said bag(s) in position to be thawed, such as gravity when heating plates are horizontal;

D.) means to lightly squeeze said plastic bag(s) to be thawed between said first and second heating plates with a force of about 0.5 to 5 pounds, such as the weight of the upper heating plate when heating plates are horizontal;

E.) means to apply heat to the back surfaces of said heating plates which are the surfaces opposite the heating surfaces of said heating plates in contact with said bag(s) to be thawed, such as etched foil stick-on heaters;

F.) means to sense the temperature of said heating plate heating surfaces where they contact said bag(s) being thawed, such as thermistors;

G.) means to control the temperature of said heating plate heating surfaces at a safe thawing temperature of about 37 to 42C where they contact said bag(s) to be thawed, such as an electronic temperature controller;

H.) means to oscillate one of said heating plates about 0.1 to 0.5 inch relative to said other heating plate at a frequency of about 0.5 to 10 Hz in a direction perpendicular to said surfaces of said heating plates to promote mixing of the thawing fluid, such as a motor-operated bellcrank;

I.) means to keep said heating plates in contact with said bags to be thawed and to limit the oscillating force to about 0.1 to 2 pounds while oscillations are occurring, such as a dashpot in the oscillating linkage;

J.) means to adjust the spacing of said heating plates to accommodate bags of different thicknesses, such as an adjustable hinge position if said heating plates are horizontal; and

K.) means to determine when said frozen liquid is completely thawed such as a thermistor in thermal contact with said bag being thawed but insulated from said heating plate surface,

whereby frozen biological fluids such as blood plasma may be quickly and safely thawed.

2. An apparatus according to claim 1 wherein said heating plates are flat.

3. An apparatus according to claim 2 wherein said heating plates are flat heat pipes, said heat pipes utilizing internal vapor condensation heating to maintain said heating plate heating surfaces at a controlled isothermal thawing temperature of about 37 to 42C, avoiding hot spots which may damage said biological fluids.

4. An apparatus according to claim 1 wherein said heating plates are concavely shaped to approximately conform to the convexly shaped surfaces of said plastic bag(s), providing increased contact area for more efficient heat transfer.

5. An apparatus according to claim 4 wherein said heating plates are concavely shaped heat pipes, said heat pipes utilizing internal vapor condensation heating to maintain said heating plate heating surfaces at a controlled isothermal thawing temperature of about 37 to 42C, avoiding hot spots which may damage said biological fluids.